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Modern changes of the ground thermal regime in the volga federal district (VFD) and accompanied changes of synoptic processes in the Atlantic-European sector of Northern hemisphere

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Abstract

The paper provides the evaluation of climate warming speeds at the Volga Federal District for the historical period of 1955-2009 and its final part (1966-2009 gg.). The results of the joint analysis for a long-term (1966-2009) dynamics of the surface thermal regime in the Volga Federal District and the occurrence of the atmospheric circulation forms according to the classification of G. Ya. Wangenheim - A.A. Girs. It is shown that the warming trend prevailed in the long-term dynamics of the thermal regime. It was found that the long-term changes of synoptic processes stimulated the paces of winter warming and reduced them during the summer period. In the long-term changes of air temperature in the VFD their distinctive features were shown due to the influence of climate developing regional factors. It was found that the highest rates of warming were observed in the VFD during March (0,80°C/10 years), which exceeded the similar figure for the Northern hemisphere 4.4 times. The slowest rate of warming in VFD were observed in May (0,02 °C/10 years), and within the Northern Hemisphere - during the period from May to September (0,13 °C/10 years). Thus, the annual differentiation of the warming rate in the VFD greatly exceeds the same indicator for the Northern Hemisphere.

Keywords

Air temperature, Global warming, Long-term changes of air temperature